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EXAMINER
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NEW YORK, NY 10004

ART UNIT	PAPER NUMBER
2308	8

DATE MAILED: 12/14/92

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on SEP. 15, 1992 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-40 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-40 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).

12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 9-89)

12-11-92

1. The examiner acknowledges the addition of claims 37-40 by the amendment filed on Sep. 15, 1992.

2. Claims 1-40 are presented for examination.

3. Claim 40 is rejected under 35 U.S.C. § 112, fourth paragraph, as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 40 depends on claim 39. However, both claims have exactly same limitations.

4. Claims 1-40 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner notes the following ambiguities.

As per claim 1, the phrase "the arbitration logic for granting the bus elements access through the central unit one at a time based upon requests from the bus elements" (lines 16-19) is vague and indefinite because it is unclear as to where the requests are made by the bus elements. Furthermore, it is unclear as to what the bus elements one at a time are accessing. Clarification and/or correction is required. No new matter should be added.

As per claim 21, it is unclear as to how the "arbiter" and "scheduling logic" are connected to the rest of the claimed structure. Clarification and/or correction is required.

As per claims 2-20 and 22-29, these claims incorporate the deficiencies of the parent claim.

As per claim 30, it is unclear as to how the "arbitration logic" is connected to the rest of the claimed structure.

Furthermore, the phrase "combination logic for accepting a plurality of inputs" (lines 5-6) is vague and indefinite because it is unclear if the combination logic accepts the plurality of inputs in parallel or serial. Clarification and/or correction is required.

As per claims 31-32, these claims incorporate the deficiencies of the parent claim.

As per claim 33, the phrase "selecting with arbitration means one of the first bus inputs to the central unit to be an output" (lines 8-9) is vague and indefinite because it is unclear as to where the first bus inputs are from. Clarification and/or correction is required.

As per claims 34-40, these claims incorporate the deficiencies of the parent claim.

5. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which

the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

6. Claims 1-19, 30-35 and 37-40 are rejected under 35 U.S.C. § 103 as being unpatentable over US Patent 4,837,682 issued to Culler in view of US Patent 4,470,114 issued to Gerhold.

As per claim 1, Culler teaches the claimed:

"a plurality of bus elements": Culler's plurality of bus elements (See Fig. 6, elements 508, 544, 548, 522 and 528);

"a central unit having a plurality of bus inputs and an output": Culler's central unit having a plurality of bus inputs and at least one output (See Fig 5, element 600); and

"arbitration logic ... granting the bus elements through the central unit": Culler's arbitration logic granting access to bus elements (See col. 8, lines 36-42).

The difference between the instant claim and the reference of Culler is that the reference of Culler does not explicitly show the limitations of "a first plurality of uni-directional point-to-point buses ... and a second plurality of uni-directional point to point buses ..." (lines 6-11). However, Gerhold in an analogous system teaches uni-directional buses between devices (See col.4, lines 49-51). The above references

are analogous in that they use arbitration technique. See MPEP 904.01(c). It would be obvious to one of ordinary skill in the data processing art at the time the invention was made to modify the system of Culler to implement uni-directional buses of Gerhold because that will provide Culler's system to operate as a high speed network for transfer of information (Gerhold teaches that in col. 2, lines 4-6). Applicant's submitted prior art WO-A-8 704 826 also shows uni-directional buses (See Fig. 2).

Remarks

The examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. However, there is no requirement that a motivation to make the modification be expressly articulated. References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosure. See In re Bozek, 163 USPQ 545 (CCPA 1969)

Furthermore, in claim 1, the system of Culler in view of Gerhold does not explicitly show "coupling at least one of the inputs to the output". However, this can be interpreted as a "special interrupt" trying to get access directly by-passing an arbitration logic which is well within the skill of ordinary person in the data processing art. Evidence of this is provided by US Patent 5,072,363 issued to Gallagher (See col. 2, lines 10-

13). It would be obvious to one of ordinary skill in the data processing art to implement the above feature in the system of Culler in view of Gerhold because the reference of Gallagher shows several types of arbitration scheme suitable for individual systems (See col. 2, line 61-col. 3, line 14 of Gallagher) and the feature of Gallagher, i.e, connecting one input to the output directly would allow the system of Culler in view of Gerhold to service special interrupt promptly. Therefore, it would be obvious to modify the arbitration circuit of Culler using Gerhold and Gallagher's features to obtain the claimed invention.

Remarks

Applicant argues that neither of the references discusses generally or specifically the combination of the functionality of conventional multidrop buses, such as only allowing one bus element access to the bus at a time and the common visibility of each transaction by all bus elements, with the speed and signal quality advantages of uni-directional point-to-point buses. However, the examiner cannot read limitations into the claim. Applicant must be arguing from the specification rather than the claims over the references because the above limitations are not in the claim except the feature "allowing one bus element access to the bus at a time" which any arbitration logic is supposed to do. The invention as claimed reads on the above references. The claim language interpretation is of major concern here. It is

well established rule that pending claim terms are given their broadest reasonable interpretation while being read in light of the specification. However, that reading pending claim terms in light of the specification does not mean that the detailed description of the preferred embodiment is to be read into otherwise broader claim limitations. See In re Prater, 415 F.2d 1393, 162 USPQ 541, 550 (CCPA 1969).

Furthermore, under section 103, not only are the teachings of the prior art taken into consideration, but also the level of ordinary skill in the pertinent art. It is not whether the features of one reference may be bodily incorporated into the other to produce the claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the pertinent art. See In re Gorman, 18 USPQ 2d 1885 (Fed. Cir. 1991).

As per claims 2-4, the limitations of the claims, i.e., "system further includes a state device" (claim 2), use of "OR gate" (claim 3), "multiplexer" (claim 4) do not patentably distinguish over the prior art because these are art recognized equivalents. It would be obvious to implement the above features in the system of Culler in view of Gerhold and Gallagher because these are technology available in the art at the time the invention was made and requires routine skill to implement.

As per claims 5-19, these claims are rejected for similar rationale as in claims 2-4.

As per claim 30, this claim is rejected for similar rationale as in claim 1.

As per claims 31-32, these claims are rejected for similar rationale as in claims 2-4.

As per clam 33, this claim recites a method which parallels apparatus claim 1. In teaching the construction and use of the device the prior art of culler in view of Gerhold inherently teaches a corresponding method.

As per claim 34, culler teaches the claimed:

"wherein the bus elements include a plurality of central processing units and a shared memory": Culler's bus elements include a plurality of central processing units and a shared memory (See Fig. 6).

As per claim 35, Culler teaches the claimed:

"selecting step further comprises selecting between the inputs on the first buses from the central processing unit and the bus from the memory": Culler's selecting inputs from the processors and memory (See col. 8, lines 12-25).

As per claims 37-38, these claims are rejected for similar rationale as in claims 2-4.

As per claims 39-40, Culler teaches the claimed:

"wherein a bus element includes a CPU": Culler's bus element

includes a CPU (See Fog. 6, element 544).

7. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopal C. Ray whose telephone number is (703) 308-1654.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0754.

Michael R. Fleming
Supervisory Patent Examiner
Group 230

GCR
GCR
December 11, 1992